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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/696,030	10/26/2000	Toshiaki Okuno	50212-144	4360
20277	7590	04/06/2004	EXAMINER	
MCDERMOTT WILL & EMERY 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			SINGH, DALZID E	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 04/06/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/696,030

Applicant(s)

OKUNO, TOSHIAKI

Examiner

Dalzid Singh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (US Patent No. 6,252,692) in view of Krimmel et al (US Patent No. 5,550,667).

Regarding claims 1 and 6, Roberts discloses optical transmission system, as shown in Fig. 6, comprising:

a modulation signal source (1522) for outputting modulation signals of a predetermined frequency; and,

a semiconductor laser source (1510) driven by said modulation signals outputted from said modulation signal source to output laser light modulated according to said modulation signals (the laser source is driven by a tapped optical signal (tapped by 1530), which includes the modulation source signal).

Roberts teaches the use of optical amplifier, as shown in Fig. 2, and differs from this claim in that Robert does not teach that the optical amplifier is within the optical transmitter. However, it is well known that optical amplifier can be located at various locations within the transmission system. Krimmel et al is cited to show such well known concept (see col. 4, lines 15-19). Since placement of optical amplifier within or outside the transmitter is well known, therefore it would have been obvious to an artisan

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of ordinary skill at the time of the invention to place the optical amplifier of Roberts within the optical transmitter as taught by Krimmel et al. One of ordinary skill in the art would have been motivated to do such in order to increase signal strength prior to transmitting the signal onto transmission lines.

Furthermore, Roberts teaches adjustment of the modulation depth (see col. 8, lines 51-60), however, Roberts does not specifically disclose that the adjustment of the modulation depth to be in the range of 60% or less. However, Roberts clearly suggests that the modulation depth is adjustable. Based on this teaching, it would have been obvious to an artisan at the time of the invention to adjust the modulation depth in the range of 60% or less. Furthermore, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Swain et al.*, 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; *Minnesota Mining and Mfg. Co. v. Coe*, 69 App D.C. 217, 99 F.2d 986, 38 USPQ 213; *Allen et al. v. Coe*, 77 App D.C. 324, 135 F.2d 11, 57 USPQ 136. In addition, discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Antonie*, 559 F.2d 239, 618, 195 USPQ 6 (CCPA 1977); *In re Aller*, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955). See also *In re Aller*, 105 USPQ 233 (CCPA 1955) and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to set the modulation depth to an optimum or workable value or range by routine experimentation.

Regarding claims 2, 7, 12 and 16, Roberts discloses optical transmission system as discussed above further comprising:

a signal source for outputting signals to be transmitted, in the form of an electric signal (1558); and

an external modulator (1524) which is provided on a transmission line between said semiconductor laser source and said optical amplifier (shown in Fig. 2), which amplitude-modulates the laser light outputted from the semiconductor laser source, based on the electric signals outputted from said signal source, and which outputs the amplitude-modulated laser light as light including signals to said optical amplifier.

Regarding claims 3 and 8, Roberts differs from these claims in that Roberts does not specifically disclose that the predetermined frequency is 20 kHz or less. However, since the operational frequency can be adjustable, therefore it would have been a matter of design choice to set the operating frequency in the range of 20 kHz or less. This supporting rationale is based on a recognition that the claimed differences exist not as a result of an attempt by applicant to solve a problem but merely amounts to selection of expedient known to the artisan of ordinary skill as design choice.

Regarding claims 4, 9, 13 and 17, Roberts shows the use of optical amplifier, as shown in Fig. 2, and differs from these claims in that Roberts does not specifically disclose that the optical amplifier comprises an erbium-doped optical fiber. However, in col. 1, lines 44-50, Roberts discloses a well-known usage of erbium-doped optical amplifier. Since erbium-doped optical amplifier is well known, therefore it would have been obvious to provide erbium-doped optical amplifier to the system of Roberts in order to increase signal strength. The motivation of using erbium-doped optical amplifier is to reduce cost, since regenerative circuitries are not required.

Regarding claims 5, 10, 14 and 18, as shown in Fig. 3, Roberts shows optical communication system comprising the optical transmitter (1) further comprising:

an optical transmission line (shown by the arrow) through which light signals outputted from said optical transmitter propagates; and

an optical receiver for receiving said light signals having propagated through said optical transmission line.

Regarding claims 11 and 15, Roberts disclose optical transmission system, as shown in Fig. 6, comprising:

a semiconductor laser source (1510) driven by said modulation signals outputted from said modulation signal source to output laser light modulated according to said modulation signals (the laser source is driven by a tapped optical signal (tapped by 1530), which includes the modulation source signal);

Roberts teaches the use of optical amplifier, as shown in Fig. 2, and differs from this claim in that Robert does not teach that the optical amplifier is within the optical transmitter. However, it is well known that optical amplifier can be located at various locations within the transmission system. Krimmel et al is cited to show such well known concept (see col. 4, lines 15-19). Since placement of optical amplifier within or outside the transmitter is well known, therefore it would have been obvious to an artisan of ordinary skill at the time of the invention to place the optical amplifier of Roberts within the optical transmitter as taught by Krimmel et al. One of ordinary skill in the art would have been motivated to do such in order to increase signal strength prior to transmitting the signal onto transmission lines;

Roberts teaches adjustment of the modulation depth (see col. 8, lines 51-60), however, Roberts does not specifically disclose that the adjustment of the modulation depth to be 10% or less. However, Roberts clearly suggests that the modulation depth is adjustable. Based on this teaching, it would have been obvious to an artisan at the time of the invention to adjust the modulation depth in the range of 60% or less. Furthermore, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Swain et al.*, 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; *Minnesota Mining and Mfg. Co. v. Coe*, 69 App D.C. 217, 99 F.2d 986, 38 USPQ 213; *Allen et al. v. Coe*, 77 App D.C. 324, 135 F.2d 11, 57 USPQ 136. In addition, discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Antonie*, 559 F.2d 239, 618, 195 USPQ 6 (CCPA 1977); *In re Aller*, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955). See also *In re Aller*, 105 USPQ 233 (CCPA 1955) and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to set the modulation depth to an optimum or workable value or range by routine experimentation.

Furthermore, Roberts differs from these claims in that Roberts does not specifically disclose that the predetermined frequency not more than 20 kHz. However, since the operational frequency can be adjustable, therefore it would have been a matter of design choice to set the operating frequency not more than 20 kHz. This supporting rationale is based on a recognition that the claimed differences exist not as a

result of an attempt by applicant to solve a problem but merely amounts to selection of expedient known to the artisan of ordinary skill as design choice.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.


### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is 703-306-5619. The examiner can normally be reached on Mon-Fri 8am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS  
March 30, 2004

  
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